PROHIBITED.

Sweet dishes–sugar in any form. *Bread.*–Wheaten bread, ordinary biscuits of all kinds; cake, desserts made with flour or sugar; puddings and pastry of all kinds; honey, rice, corn, flour, sago, tapioca, arrowroot, macaroni, vermicelli. *Farinaceous or Saccharine Vegetables.*—Potatoes, artichokes, turnips, carrots, parsnips, peas, beans, beets, spanish onions, asparagus, tomatoes, stalks and white parts of cabbage, lettuce, cauliflower, celery, broccoli, radishes. Liver of all animals; nuts, chestnuts; fruits of all kinds, fresh or preserved; jams, syrups, sugars; diabetic foods, sweet pickles. *Drinks.* — Chocolate, sweet wines, sparkling wines, port wine, liquors, sweet ales, mild and old; porter and stout, cider. Milk does not need to be absolutely banished, but if used, use sparingly.

IMPORTANCE OF PHYSIOLOGY AND DIETETICS TO THE SURGEON.

Presented to the Section on Physiology and Dietetics at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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The dimensions of this subject are such that it is impossible to encompass it by the confines of a single article, in a limited time.

The relationship existing between physiology and surgery, in every phase of our profession, is so intimate that, to think or work in the latter without a thoughtful consideration of the former, can never lead to successful results. When we look at what is done by our masters in surgery, we are convinced that they only attained such perfection in their handling of surgical subjects by close application of the very principles of the science. To become merely a flash operator or a mechanic demonstrator of what the human hand, aided by a well-trained eye, is capable of in a dexterous way, may go a long way toward giving that one a wide reputation as a surgeon, but, in the long run, the surgeon is known by his results. The brilliant operator is bound to secure certain excellent successes, but, if he maintains his standing in the major work that comes to him, he can not give the cold shoulder to physiology and dietetics. They are his guiding stars. No definite line can be followed; he must cut according to his cloth, and he who lacks physiologic good sense, no matter how otherwise endowed, is no surgeon. But time will not permit me to go into the minutiæ of the physiologic and bacteriologic laboratories, or into the very essence of physiology itself, and trace out its many ramifications. Such an exhaustive treatise on the subject can be found in any of the most recent text-books, in much better form and more acceptably than I am able to place it before you.

There is no reason why a surgeon should be a better physiologist than a practitioner of medicine, an obstetrician, a gynecologist, an oculist, or any other disciple of the many branches into which the profession has been divided. The very foundation-stone of the science of medicine is physiology; it must be, from its very nature, for surgery is really but a branch of medicine; and all who do work in our numerous specialties, must, by wise legislation, first attain the degree of Doctor of Medicine. Anatomy must be what some might term almost the right arm of the surgeon. But if this be true, physiology is the right arm of anatomy. For, of what satisfaction is it to him who performs an operation, to look over his work, dress the wound, and then to see his patient die because the normal functions of the body go unattended? Is it not physiology that steps in here, takes up the work where the knife left off, and by intelligent management adds another success to the surgeon's credit? The knife in the most skilful hands the world ever knew can do only so much. It may relieve organs of the burden of diseased tissue, it may lop off unnecessary and useless members, but who ever heard of its replacing extirpated tissue of the stomach or intestinal tract, that could perform the functions of that lost? How long would our patients survive if, for instance, the entire alimentary canal were removed? Very true, indeed, sections of great length have been made from the intestinal tract, huge slices have been cut from the stomach, and the patient made an excellent recovery, but, if the physiology of the bowel be destroyed, or even too greatly interfered with, if the destruction of the glands of digestion take place, death comes inevitably.

Thus at the very elbow of the surgeon stands physiology, to warn the too venturesome operator that a halt must be called if he values his patient's welfare. By physiologic forewarnings we come to recognize malignant conditions interfering with alimentation and other functions, and to be forewarned is to be forearmed. These indicate to the surgeon, not only the position, but the character and extent of the involvement of normal tissue, thus enabling him to lend a helping hand to his greatest ally.

Great successes have been recently announced wherein the adaptability of the least remnant of the stomach, left after excision for malignant disease has been demonstrated. Schlätter (vide JOURNAL, vol. xxx, p. 265), Krönlein, Schuchardt, and Langenbuch have related to us their partial or complete gastrectomy, and the duodenum took up the task of playing stomach for the living example, and did it with success.

We do not know all of physiology as yet. Still, without paying it our most profound respect the most brilliant results of modern surgery would come to naught. Thus, with due respect to anatomy, to express myself more clearly, the surgeon must be equipped with two right arms; physiology first and anatomy second.

Were it not the fact that all bodies or engines of use must, in order to perform their necessary functions, be supplied with the proper elements to replace loss and repair damages, there would be very little for the surgeon to do beyond the mere exhibition of his skill and dexterity in handling the scalpel. Then all operations would be successes, and the surgeon would be the only truly great one among us.

The principle, that attention to the physiologic details of all operative work must ever be borne in mind holds good under all circumstances. The operator who willfully violates a physiologic principle, either in the immediate operation or in the post-operative care of his cases, will pay for it as dearly as he who goes contrary to any established surgical procedure. Infection of the intestinal tract, for instance, is as easily accomplished as infection of an open wound, and usually causes more disturbance to the patient than if the operated area became one solid slough. There is not enough attention paid to the ante-operative and the post-operative care of patients, especially

in abdominal surgery. One of the first questions asked by the nurse, when the operation is over, is, "Doctor, what may the patient have to eat?" Often, without waiting to consider the amount of resistance with which the patient may be endowed, the surgeon will say, "Oh, almost anything he wants," thus committing one of the grossest errors of which he is capable. So much has been said and written on the subject of dietetics, in connection with surgical work, and yet so little is accurately known, that it behooves each operator to himself become an investigator; and as his experience becomes greater with the increase of work, he will be enabled to lay down certain principles by which those coming after him may profit.

But the trouble is that as soon as the mere operative manipulation is a thing of the past, the patients usually cease to be an item of interest, except in a perfunctory way, and they are left to the tender mercies of a house physician, a nurse, or an undergraduate. Our surgeons are not physiologists. The matter of experimentation, carried out with strict adherence to scientific principles, is almost unknown to the great majority of them. The application of the simplest facts concerning diet and assimilation is disregarded. The condition of the patient, that element about which so much talk is wasted and so little is known, which we call "shock," is often overlooked. The fact that shock should enter into our considerations in minor operations is scarcely thought of; for to the mind of many an ambitious operator of today, such an element is unworthy of notice, except it be in connection with the invasion of the abdominal cavity. To him, an assault on the abdomen by a route which leads to the capitulation of some of its organs, is the acme of his desire. The terms "laparotomy," "celiotomy," "abdominal section," and lastly "vaginal section," are significant of such visions of greatness and reward to many men that they overshadow all other approaches to a career of usefulness and distinction. To be able to add name after name of successful sections of the abdomen to one's record, seems to be the height of the ambition of many with whom we come in contact. It is indeed lamentable that result cuts no figure. A cure often takes a secondary place in many long lists of statistics. The mere fact that the operated ones live to get on their feet and drag about in a half-dead manner for months and sometimes for years, perhaps with a post-operative hernia also, does not seem to have any influence on him who has his eye on the fee rather than on successful work. If the surgeon, if all practitioners, in fact, were better physiologists, if all physicians paid more attention to diet and assimilation, in the administration of remedies and the care of those to whom they owe their time and their best efforts, the surgeon, specifically, would not reap such rich rewards.

We can not overestimate the great value and importance, not only to one's self, but also to the patient, of a thorough knowledge of the subject of the administration of food, its treatment by the stomach, its assimilation and its final distribution through the proper channels. If we resolve the subject into a question of importance to the surgeon, it comes more closely to him when the matter of dietetics is considered in his care of patients after abdominal operations. One should not forget the all-important fact that the processes of waste occur continually. There can not be a moment of our lives, be we sick or well, asleep or awake, when such waste of tissue does not go on. Repair must take place equally as rapidly, else we lose, so much in fact, that our life is endangered. For this reason regularly feeding the operated one at night is of as much importance as food by day. The vitality must be sustained by the proper exhibition of easily assimilable materials, either by the mouth or rectum, from the very outset. It is a grave error to starve the patient after section of the abdomen, a certainty which experience alone can teach us. It is a fact that must be taken into consideration that the functions of the vasomotor system are abnormally suspended by the shock sustained by one undergoing such a major operation. Consequently, the administration of foods of almost any character, until the equilibrium of the vasomotor system is restored, is most unwise. Usually we look for one to be fully out of shock in from twenty-four to thirty-six hours. Then the stomach is in fit shape to readily seize upon nutriment in small amounts, often repeated, and in a concentrated or predigested form. The intestines will be in readiness to assimilate and convert into proper solution the food administered, and the weakened heart will be buoyed and strengthened thereby, its beats will be firm and full, and of such a quality as to assure us our patient is in good condition.

We so often hear of and sometimes see patients who, it is claimed, die of exhaustion. What is this exhaustion? Too often, it may be, it is but the consequence of a succession of shocks, operative or otherwise, sustained by the individual, which so overpower and outweigh the recuperative ability that what little spark of vitality remains flashes out and they are gone. If this obtunded sympathetic system were taken into consideration at the time of extensive injuries to soft parts, and to the extremities, amputation and operation would not be so hurriedly advised and performed. Shock of operation added to shock of injury, is like feeding fuel to a flame that should be extinguished. Physiologic reaction rarely sets in where a system has been so ignorantly handled. If we would but stop and look into the book of the physical body, on the pages of which we read the rapid, weak, irregular pulse, the total insensibility to pain, perhaps the partial or complete loss of consciousness, the contracted pupil, the blanched face, the pinched, drawn countenance, the sighing respiration, the refusal of nourishment with the consequent craving for water, here we would see, as it were, an open page of the plainest most simple teachings from the book of physiology.

Physiology gives us at a glance the contraindication to operation, and it tells us how long, and to what extent we may pursue our cutting. Who would undertake operative procedure on a kidney without determining, by physiologic examination and investigation, the condition and amount of urinary secretions? It is the test-tube, the microscope and the germ cultivation, in the hands of the physiologists, that have made it fairer sailing for the surgeon, and have removed many obstacles among his onerous duties. Virchow, Pasteur, Koch and numerous others are they to whom the surgeons of the present owe their allegiance. These investigators have made it possible for their *confréres* to make unheard of assaults on man, and have opened up fields of labor for him which seem almost exhaustless. Under the guiding hands of these geniuses, the surgeon cuts here or there, taking out tissue, in one instance for examination, and in another for demonstration, then boldly hews to the line.

This is not the place to give directions for preparatory measures, when abdominal operations are under advisement. Still, I believe that if the patients be well and considerately nourished, even up to the limit of their capacity, before operation be undertaken, their immediate reaction and consequent convalescence would be a matter of much congratulation to them, as well as to ourselves. For it is no longer a question of doubt in my mind that the preparation of the patient immediately before operation has much to do with the outcome of the attack upon his organism.

It would be the height of folly for us to allow a subject to go under anesthesia without a careful examination of heart and lungs, and without having cleansed their economy by the ingestion of large quantities of pure water. Their wholesome, nourishing food need not be denied them until at least twenty-four hours previous to the time of attack. The water really aids greatly in the excitation to the discharge of gastric juices, dilutes the nourishing materials, and increases assimilation. So I would not starve a patient and then sluice him out with gallons of hot water, but I would follow the plan above, and see the operated one come from under anesthesia more quickly, with a stronger pulse, and with less shock than otherwise. I am convinced that one of the most formidable elements we have to contend with in abdominal surgery is that of intestinal flatus. I am also convinced that a great amount of the annoyance experienced by the patient in enduring it, as well as by the surgeon in endeavoring to combat it, might be eliminated by proper attention to the materials which enter the alimentary canal. Gaseous distention of the intestinal tract may occur equally as readily when we have prohibited the ingestion of food as when we have allowed something which will cause fermentation and consequent tympanitis.

I maintain in conclusion that the absolute observance of the physiology of digestion, the proper selection and careful and regular administration of articles of diet for hygienic results, and the study of such foods as are given for their therapeutic value, will minimize such disturbances and contribute greatly to the comfort and recovery of the patient. Without this due consideration for the complex human machinery and its conservation of energy; without a due allowance for the condition of heart, lungs, brain and kidneys, surgery will continue to be largely unsatisfactory both to surgeon and patient.

DISCUSSION.

Dr. L. DUNCAN BULKLEY of New York said that he was indeed pleased that this very important matter had been so ably presented. It was the greatest mistake to regard only the operative side of surgery. The surgeon should be the accomplished, thinking physician, and as such he could save lives which otherwise were often sacrificed. He stated that Dr. Joseph C. Eastman, in the presence of a number of physicians, had stated that during the past few years he had certainly saved some lives by the rigid employment of the plan of giving milk, warm, pure and alone, as just advocated by the present speaker in his paper. This he did, both before and soon after operations, and found that patients rallied and improved as never before. Dr. Bulkley wished to urge again, and most emphatically, the value of this method of feeding in connection with operations.

Dr. E. STUVER—This is a subject of the very greatest importance. In the selection of food for diseased conditions and especially in those cases where surgical shock is a factor to be considered, great care should be exercised to secure foods containing the greatest amount of tissue-building and force producing materials, but such as will throw the least strain on the digestive and assimilative organs and at the same time least interfere with free elimination. Since the great importance and far-reaching consequences of auto-intoxication have been recognized, greater attention is being paid to the excretory organs, and free elimination of toxic materials is now regarded as one of the most important matters in the management of any case. This practice is being followed by excellent results both in surgery and medicine, and many cases, that formerly, owing to improper diet and retained poisons, died, are now being saved.

Dr. PLUMMER in closing the discussion, said the subject was of great importance to him, and ought to be to every thinking physician. His attention had been called to the demand for food by those suffering from shock, by the manner in which dumb animals act when sick or injured. A sick or injured dog refuses food until such a time when his natural appetite calls for it—why should not the human body be supplied on the same principle? The employment of good sense and the following of physiologic teachings should guide us, then our results would be better and more satisfactory.

PHYSIATRICS, OR NATURE'S THERAPY.

Presented to the Section on Physiology and Dietetics at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY C. F. ULRICH, A.M., M.D.

WHEELING, W. VA.

Nature is, without doubt, the best, the most successful physician, when she is permitted to have full sway and her mandates are obeyed. Almost every disease, every ailment, every departure from the normal condition, exhibits a tendency to recovery. In the human body, as in that of the animal, there exists apparatus for the removal of elements that disturb the healthful working of the internal machinery; such as the depuratory system, i. e., the bowels, the kidneys, and the sudoriferous glands. The work of depuration is not confined to the above named organs, neither is that their only function, since the intestinal tract is largely concerned in digesting the food and preparing it for assimilation, and the system of sudoriferous glands serves to cool the surface of the body during excessive heat and in fevers. The greater number of diseases that afflict man and sometimes cause his death will result in recovery, if circumstances are favorable, and if there is not some unnecessary interference by the patient, his family, or an unskilful physician. I wish not, however, to be understood as insinuating that the physician is a superfluous piece of furniture and should be abolished. Far be it from me to assert any thing so heretic. I will stand up for our beloved profession at all times and under all circumstances. Yet I should be very happy could I live to see an expurgated edition of the medical calendar. In another part of this paper I will endeavor to show how much benefit the skilful, conscientious physician can confer upon his patients, even though he does not cram them daily with poisonous or deleterious drugs; or cut them open, remove certain parts from their bodies, and sew them up again, as the tailor does in repairing an old garment that is wearing out. Unfortunately, he can not imitate the tailor, who inserts a new piece where he has removed the defective part. He can not replace the organ that has been removed by inserting a new and healthy one, thus preserving the natural function. The body, after such a mutilation, necessarily remains an imperfect machine. The occult principle which we call nature or vital force, is the chief motive power in the development, the growth, and also the decline and death of the human body. It may seem somewhat paradoxic to assert that the vital force is instrumental in the induction of decay and death. Yet it is ap-